Louisville Metro Air Pollution Control District
701 West Ormsby Avenue, Suite 303
Louisville, Kentucky 40203-3137

Federally Enforceable District Origin Operating Permit (FEDOOP)

Permit No.: O-1293-19-F Plant ID: 1293

Effective Date: 10/28/2019 Expiration Date: 10/31/2024

Permission is hereby given by the Louisville Metro Air Pollution Control District to operate the process(es) and equipment described herein which are located at:

Source:	Ernst Concrete Kentucky, LLC – Downtown Plant 4121 Algonquin Parkway Louisville, KY 40211	**Owner**:	Ernst Concrete Kentucky, LLC 3361 Successful Way Dayton, OH 15414

The applicable procedures of District Regulation 2.17 regarding review by the U.S. EPA and public participation have been followed in the issuance of this permit. Based on review of the application on file with the District, permission is given to operate under the conditions stipulated herein. If a renewal permit is not issued prior to the expiration date, the owner or operator may continue to operate in accordance with the terms and conditions of this permit beyond the expiration date, provided that a complete renewal application is submitted to the District no earlier than twelve (12) months and no later than ninety days prior to the expiration date.

Emission limitations to qualify for non-major status:

Pollutant: PM_{10}
Tons/year: <25

Application No.: See **Application and Related Documents** table.
Public Notice Date: 09/25/2019

Permit writer: Martin J Hazelett

Air Pollution Control Officer
10/28/2019

Table of Contents

FEDOOP Permit Revisions and Changes

Permit No.	Public Notice Date	Issue Date	Change Type	Description/Scope
27843-14-F	9/13/2014	10/22/2014	Initial	Initial Permit Issuance
27843-14-F(R1)	7/18/2017	8/18/2017	Admin	Updated to newest format; corrected Insignificant Activities list and added Insignificant Activity Emission Unit (Emission Unit IA)
			Significant.	Incorporation of Construction Permit C-1293-1002-17-F (entire Emission Unit U1); Removed GHG emission limits from General Condition 10, as it no longer applies
O-1293-19-F	09/25/2019	10/28/2019	Renewal	Updated permit format, updated emission point designations, added 5.6 MMBtu/hr direct fired water heater (Non-Regulated), and batch admixture storage totes (Insignificant activities) Added controlled and uncontrolled emission factors to clarify how to calculate emissions

Construction Permit Summary

Permit No.	Issue Date	Description
C-1293-1002-17-F	5/9/2017	New ready mix batch plant to replace existing ready mix batch plant.

Application and Related Documents

Document Number	Date	Description
83180	3/30/2017	Certificate of Authority
98514; 98537	05/29/2019	Email about FEDOOP renewal application
98611	06/13/2019	Ernst Concrete Kentucky, LLC Site Visit
OB3074	07/25/2019	Email about FEDOOP renewal application
OB91559	07/29/2019	Operating FEDDOP renewal Application (received)

Document Number	Date	Description
OB91560	8/20/2019	Request for updated FEDOOP application to correct control device for E16
OB118908	9/23/2019	Draft permit sent to company and second request for updated application
OB118929	9/24/2019	Updated FEDOOP Renewal Application received

Abbreviations and Acronyms

AP-42	- AP-42, *Compilation of Air Pollutant Emission Factors, published by U.S.EPA*
APCD	- Louisville Metro Air Pollution Control District
BAC	- Benchmark Ambient Concentration
BACT	- Best Available Control Technology
Btu	- British thermal unit
CEMS	- Continuous Emission Monitoring System
CFR	- Code of Federal Regulations
CO	- Carbon monoxide
District	- Louisville Metro Air Pollution Control District
EA	- Environmental Acceptability
gal	- U.S. fluid gallons
GHG	- Greenhouse Gas
HAP	- Hazardous Air Pollutant
Hg	- Mercury
hr	- Hour
in.	- Inches
lbs	- Pounds
l	- Liter
LMAPCD	- Louisville Metro Air Pollution Control District
mmHg	- Millimeters of mercury column height
MM	- Million
(M)SDS	- (Material) Safety Data Sheet
NAICS	- North American Industry Classification System
NO_x	- Nitrogen oxides
PM	- Particulate Matter
PM_{10}	- Particulate Matter less than 10 microns
$PM_{2.5}$	- Particulate Matter less than 2.5 microns
ppm	- parts per million
PSD	- Prevention of Significant Deterioration
psia	- Pounds per square inch absolute
QA	- Quality Assurance
RACT	- Reasonably Available Control Technology
SIC	- Standard Industrial Classification
SIP	- State Implementation Plan
SO_2	- Sulfur dioxide
STAR	- Strategic Toxic Air Reduction
TAC	- Toxic Air Contaminant
UTM	- Universal Transverse Mercator
VOC	- Volatile Organic Compound
w.c.	- Water column
year	- Any period of twelve consecutive months, unless "calendar year" is specified
yr	- Year, or any 12 consecutive-month period, as determined by context

Preamble

This permit covers only the provisions of Kentucky Revised Statutes Chapter 77 Air Pollution Control, the regulations of the Louisville Metro Air Pollution Control District (District) and, where appropriate, certain federal regulations. The issuance of this permit does not exempt any owner or operator to whom it has been issued from prosecution on account of the emission or issuance of any air contaminant caused or permitted by such owner or operator in violation of any of the provisions of KRS 77 or District regulations. Any permit shall be considered invalid if timely payment of annual fees is not made. The permit contains general permit conditions and specific permit conditions. General conditions are applicable unless a more stringent requirement is specified elsewhere in the permit.

General Conditions

G1. The owner or operator shall comply with all General Conditions herein and all terms and conditions in the referenced process/process equipment list.

G2. All terms and conditions in this FEDOOP are enforceable by EPA, except those terms and conditions specified as District-only enforceable, and those which are not required pursuant to the Clean Air Act Amendments of 1990 (CAAA) or any of the Act's applicable requirements.

G3. All application forms, reports, compliance certifications, and other relevant information submitted to the District shall be certified by a responsible official. If a change in the responsible official (RO) occurs during the term of this permit, or if an RO is added, the owner or operator shall provide written notification (Form AP-100A) to the District within 30 calendar days of such change or addition.

G4. The owner or operator shall submit an annual compliance certification, signed by the responsible official, to the District, on or before April 15 of the year following the year for which the certification applies. This certification shall include completion of District Form 9440-O.

G5. Periodic testing, instrumental monitoring, or non-instrumental monitoring, which may include record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstrating continuing compliance with the terms and conditions of this permit.

G6. The owner or operator shall retain all records required by the District or any applicable requirement, including all required monitoring data and supporting information, for a period of five years from the date of the monitoring, sampling, measurement, report, or application, unless a longer time period for record retention is required by the District or an applicable requirement. Records shall be retrievable within a reasonable time and made available to the District, Kentucky Division for Air Quality, or the EPA upon request.

G7. The owner or operator shall provide written notification to the District, and receive approval, prior to making any changes to existing equipment or processes that would result in emissions of any regulated pollutant in excess of the allowable emissions specified in this permit.

G8. This permit may be reissued, revised, reopened, or revoked pursuant to District Regulation 2.17. Repeated violations of permit conditions are sufficient cause for revocation of this permit. The filing of a request by the owner or operator for any reissuance, revision, revocation, termination, or a notification of planned changes in equipment or processes, or anticipated noncompliance shall not alter any permit requirement.

G9. Except as otherwise specified or limited herein, the owner or operator shall not allow or cause the emissions to equal or exceed either 10 tons per year, or such lesser quantity as the EPA has established by rule, of any one Hazardous Air Pollutant (HAP) or 25 tons per

year of all HAPs combined. Fugitive HAP emissions shall be included in this limit. HAPs are listed in section 112(b) of the CAAA and as amended in 40 CFR 63, Subpart C.

G10. Except as otherwise specified or limited herein, the owner or operator shall not allow or cause the emissions to equal or exceed 100 tons per year of any regulated pollutant, including particulate matter, PM_{10}, $PM_{2.5}$, sulfur dioxide, carbon monoxide, nitrogen oxides, lead, hydrogen sulfide, gaseous fluorides, total fluorides, or Volatile Organic Compounds (VOC); any pollutant subject to any standard in District Regulation 7.02; or any substance listed in sections 112(r), 602(a) and 602(b) of the CAAA. Fugitive emissions shall be included in these limits for source categories listed in District Regulation 2.16.

G11. Unless specified elsewhere in this permit, the owner or operator shall complete required monthly record keeping within 30 days following the end of each calendar month.

G12. Unless specified elsewhere in this permit, the owner or operator shall submit semi-annual reports demonstrating compliance with the emission limitations specified. The report shall contain monthly and consecutive 12-month totals for each pollutant that has a federally enforceable limitation on the potential to emit. All reports shall include the company name, plant ID number, and the beginning and ending date of the reporting period. The compliance reports shall clearly identify any deviation from a permit requirement or a declaration that there were no such deviations. All compliance reports shall include the following per Regulation 2.17, section 3.5.

- A certification statement: "Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this document are true, accurate, and complete", and
- The signature and title of a responsible official of the company.

The semi-annual compliance reports are due on or before the following dates of each calendar year:

Reporting Period	**Report Due Date**
January 1 - June 30	August 29
July 1 - December 31	March 1 of the following year

G13. The owner or operator shall comply with all applicable requirements of the following federally enforceable District Regulations:

Regulation	**Title**
1.01	General Application of Regulations and Standards
1.02	Definitions
1.03	Abbreviations and Acronyms
1.04	Performance Tests
1.05	Compliance with Emissions Standards and Maintenance Requirements
1.06	Source Self-Monitoring, Emission Inventory Development and Reporting

Regulation	Title
1.07	Excess Emissions During Startups, Shutdowns, and Upset Conditions
1.08	Administrative Procedures
1.09	Prohibition of Air Pollution
1.10	Circumvention
1.11	Control of Open Burning
1.14	Control of Fugitive Particulate Emissions
1.18	Rule Effectiveness
1.19	Administrative Hearings
2.01	General Application (Permit Requirements)
2.02	Air Pollution Regulation Requirements and Exemptions
2.03	Authorization to Construct or Operate; Demolition/Renovation Notices and Permit Requirements
2.06	Permit Requirements – Other Sources
2.09	Causes for Permit Modification, Revocation, or Suspension
2.10	Stack Height Considerations
2.11	Air Quality Model Usage
3.01	Ambient Air Quality Standards
4.01	General Provisions for Emergency Episodes
4.02	Episode Criteria
4.03	General Abatement Requirements
4.04	Particulate and Sulfur Dioxide Reduction Requirements
4.05	Hydrocarbon and Nitrogen Oxides Reduction Requirements
4.06	Carbon Monoxide Reduction Requirements
4.07	Episode Reporting Requirements
6.01	General Provisions (Existing Affected Facilities)
6.02	Emission Monitoring for Existing Sources
7.01	General Provisions (New Affected Facilities)

G14. The owner or operator shall comply with all applicable requirements of the following District-only enforceable regulations:

Regulation	Title
1.12	Control of Nuisances
1.13	Control of Objectionable Odors
2.08	Emission Fee, Permit Fees and Permit Renewal Procedures
2.17	Federally Enforceable District Origin Operating Permits
5.00	Definitions
5.01	General Provisions
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants
5.14	Hazardous Air Pollutants and Source Categories
5.20	Methodology for Determining Benchmark Ambient Concentration of a Toxic Air Contaminant
5.21	Environmental Acceptability for Toxic Air Contaminants
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant
5.23	Categories of Toxic Air Contaminants
7.02	Adoption and Incorporation by Reference of Federal New Source Performance Standards

G15. The owner or operator shall submit emission inventory reports, as required by Regulation 1.06, if so notified by the District.

G16. The owner or operator shall submit timely reports of abnormal conditions or operational changes that may cause excess emissions, as required by Regulation 1.07.

G17. Applications, reports, test data, monitoring data, compliance certifications, and any other document required by this permit shall be submitted to:

Air Pollution Control District
701 W. Ormsby Avenue, Suite 303
Louisville, Kentucky 40203-3137

Plantwide Requirements

Plantwide Applicable Regulations

FEDERALLY ENFORCEABLE REGULATIONS		
Regulation	**Title**	**Applicable Sections**
2.17	Federally Enforceable District Origin Operating Permit	All

DISTRICT ONLY ENFORCEABLE REGULATIONS		
Regulation	**Title**	**Applicable Sections**
5.00	Definitions	1, 2

Plantwide Specific Conditions

S1. Standards
[Regulation 2.17, section 5.1]

a. $PM/PM_{10}/PM_{2.5}$

i. The owner or operator shall not allow the plantwide emissions of the pollutant PM_{10} to equal or exceed twenty-five (25) tons per twelve consecutive month period.[1] [Regulation 2.17, section 5.1]

ii. The owner or operator shall not allow the plantwide emissions of the pollutant PM to equal or exceed twenty-five (25) tons per twelve (12) consecutive month period. [Regulation 5.00]

iii. The owner or operator shall not allow the plantwide emissions of the pollutant $PM_{2.5}$ to equal or exceed twenty-five (25) tons per twelve (12) consecutive month period. [Regulation 5.00]

S2. Monitoring and Record Keeping
[Regulation 2.17, section 5.2]

The owner or operator shall maintain the following records for a minimum of 5 years and make the records readily available to the District upon request.

a. $PM/PM_{10}/PM_{2.5}$

i. The owner or operator shall, monthly, maintain records of the below listed items:

(1) Monthly amount of concrete produced and the twelve (12) consecutive month period total of concrete produced in cubic yards.

(2) The owner or operator shall monthly, calculate and record, during the first thirty calendar days of the following month, the monthly total and the twelve (12) consecutive month total emissions of the pollutant $PM/PM_{10}PM_{2.5}$. All totals shall include $PM/PM_{10}/PM_{2.5}$ emitted during control bypasses.

ii. The owner or operator shall use the Calculation Methodology (Attachment A) listed from AP-42, Concrete Batching, emission factors when calculating the controlled or uncontrolled plantwide emissions for the

[1] On February 28, 2014, the source requested the plantwide limits of 25 ton/year for the pollutants PM_{10} to become FEDOOP STAR-Exempt source per Regulation 5.00, section 1.13.5.

pollutant PM/PM_{10}/$PM_{2.5}$, or other emission factors that become available, as approved in writing by the District.[2]

S3. Reporting

[Regulation 2.17, section 5.2]

The owner or operator shall report the following information, as required by General Condition 12:

a. PM/PM_{10}/$PM_{2.5}$

i. The owner or operator shall report the monthly totals and the twelve (12) consecutive month period totals of plantwide emissions of the pollutant PM/PM_{10}/$PM_{2.5}$.

[2] The PM/PM_{10}/$PM_{2.5}$ emissions were calculated utilizing the emission factors from AP-42, Chapter 11.12, Concrete Batching, Tables 11.12-2 and 11.12-5, and the standard concrete mix proportions listed in AP-42, chapter 11.12.

Emission Unit U1: Concrete Dry Mix Batch Plant

U1 Applicable Regulations

FEDERALLY ENFORCEABLE REGULATIONS		
Regulation	**Title**	**Applicable Sections**
1.14	Control of Fugitive Particulate Emissions	All
2.17	Federally Enforceable District Origin Operating Permit	All
7.08	Standards of Performance for New Process Operations	1, 2, and 3

U1 Equipment

Emission Point	Description	Install Date	Applicable Regulations	Control ID	Release ID
E1b	Aggregate delivery to ground storage [stockpile] via Dump Truck (Capacity: 112 ton/hr)	2018	1.14, 7.08	N/A	N/A
E2b	Sand delivery to ground [stockpile] via Dump Truck; (Capacity: 86 ton/hr)	2018	1.14, 7.08	N/A	N/A
E3b	Aggregate handling [front loader: pile to conveyor fill hopper] Loader (Caterpillar 950B) (Capacity: 112 ton/hr)	2018	7.08	N/A	N/A
E3.1b	Aggregate transfer to conveyor from fill hopper, Con-E-Co (Capacity: 112 ton/hr)	2018	7.08	N/A	N/A
E4b	Loader, Caterpillar 950B: Sand transfer to conveyor fill hopper (Capacity: 86 ton/hr)	2018	7.08	N/A	N/A
E4.1b	Sand transfer to conveyor from fill hopper, Con-E-Co (Capacity: 86 ton/hr)	2018	7.08	N/A	N/A
E5b	Conveyor, Con-E-Co, Lo-Pro IZ RS: Aggregate transfer to elevated storage via conveyor (Capacity: 112 ton/hr)	2018	7.08	N/A	N/A
E6b	Conveyor, Con-E-Co, Lo-Pro IZ RS: Sand transfer to elevated storage via conveyor (Capacity: 86 ton/hr)	2018	7.08	N/A	N/A
E7b	Elevated Storage Silo I, Belgrade Steel Tank 1065BB L: Cement Unloading (Capacity: 50 ton/hr)	2018	7.08	C1b	S1

Emission Point	Description	Install Date	Applicable Regulations	Control ID	Release ID
E8b	Elevated Storage Silo II & III (Belgrade Steel Tank 1022 BB L): Cement Unloading (Capacity: 50 ton/hr)	2018	7.08	C2b	S2
E9b	Elevated Storage Silo IV & V, Belgrade Steel Tank 850 BBL: Cement & Fly Ash Unloading, (Capacity: 50 ton/hr)	2018	7.08	C3b	S3
E10b	Weigh hopper, Con-E-Co, Lo-Pro IZ RS: loading of sand and aggregate from storage bins (batcher) (Capacity: 198 ton/hr)	2018	7.08	C4b	S4
E10.1b	Aggregate/sand transfer conveyor (Weigh hopper conveyer to truck load out)	2018	7.08	N/A	N/A
E16	Cement/Fly Ash weigh hopper (batcher), Con-E-Co, PJC-80, (Capacity 34 ton/hr)	2018	7.08	C5b	S5
E11b	Transit Mix Truck loading of cement and fly ash, Con-E-Co, Lo-Pro IZ RS, (Capacity 34 ton/hr)	2018	7.08	C5b	S5
E12	Paved/Unpaved Roads	N/A	1.14	N/A	N/A
E15	Slop/Sediment handling and stockpile	N/A	1.14, 7.08	N/A	N/A

U1 Control Devices

Control ID	Description	Control Efficiency	Performance Indicator
C1b	Belgrade Steel Tank Co 300 Pulse Jet Baghouse	98%[3]	Visual Inspection
C2b	Belgrade Steel Tank Co 300 Pulse Jet Baghouse	98%	Visual Inspection
C3b	Belgrade Steel Tank Co 300 Pulse Jet Baghouse	98%	Visual Inspection
C4b	Belgrade Steel Tank Co PJC-80 Pulse Jet Baghouse	98%	Visual Inspection
C5b	Belgrade Steel Tank Co PJ-2000D Pulse Jet Baghouse	98%	Visual Inspection

[3] The District defined default control efficiency for a baghouse is 98%.

U1 Specific Conditions

S1. Standards

[Regulation 2.17, section 5.1]

a. Opacity

i. For emission points: E1b, E2b, E12, and E15: No person shall cause or permit the discharge of fugitive emissions in excess of 20% opacity.
[Regulation 1.14, section 2.3]

ii. No person shall cause or permit the discharge of visible fugitive emissions beyond the lot line of the property on which the emissions originate.
[Regulation 1.14, section 2.4]

iii. For emission points E1b, E2b, E3b, E3.1b, E4b, E4.1b, E5b, E6b, E7b, E8b, E9b, E10b, E10.1b, E11b, E15, and E16: No owner or operator shall cause to be discharged into the atmosphere from any affected facility, or from any air pollution control equipment installed on any affected facility, any gases that may contain particulate matter that is equal to or greater than 20% opacity.
[Regulation 7.08, section 3.1.1]

b. PM/PM_{10}

i. See Plantwide Requirements.

ii. The owner or operator shall not allow a road to be used without taking reasonable precautions to prevent particulate matter from becoming airborne beyond the work site. Such precautions shall include, where applicable, but shall not be limited to, the following:
[Regulation 1.14, section 2.1]

(1) Applying and maintaining asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts, [Regulation 1.14, section 2.1.2]

(2) Covering at all times, except when loading and unloading, open bodied trucks transporting materials likely to become airborne, [Regulation 1.14, section 2.1.4]

(3) Maintaining paved roadways in a clean condition,
[Regulation 1.14, section 2.1.6]

(4) Removing earth or other material from paved streets which earth or other material has been transported thereto by trucking or earth moving equipment or erosion by water.
[Regulation 1.14, section 2.1.7]

iii. For Emission Points E7b, E8b, E9b, E11b, and E16: The owner or operator shall operate and maintain the control device at all times an associated emission point is in operation, including periods of startup, shutdown, and malfunction, in a manner consistent with good air pollution control practice for minimizing emissions. [4] [5] [Regulation 1.05, section 5]

iv. The owner or operator shall not allow PM emissions to exceed the lb/hr standards in the table "PM Limit (lb/hr) per Emission Point" based on actual operating hours in a calendar day.[5]
[Regulation 7.08, section 3.1.2]

Table 1. PM Limit (lb/hr) per Emission Point

Emission Point	PM Limit (lb/hr)
E1b: Aggregate delivery to ground storage [stockpile] via Dump Truck (Capacity: 112 ton/hr)	36.83
E2b: Sand delivery to ground storage [stockpile] via Dump Truck (Capacity: 86 ton/hr)	35.30
E3b: Aggregate handling [front loader: pile to conveyor fill hopper] Loader (Caterpillar 950B) (Capacity: 112 ton/hr)	36.83
E3.1b: Aggregate transfer to conveyor from fill hopper, Con-E-Co (Capacity: 112 ton/hr)	36.83
E4b: Sand handling [front loader: pile to conveyor fill hopper]; Loader (Caterpillar 950B) (Capacity: 86 ton/hr)	35.30
E4.1b: Sand transfer to conveyor from fill hopper, Con-E-Co (Capacity: 86 ton/hr)	35.30
E5b: Conveyor, Con-E-Co, Lo-Pro IZ RS: Aggregate transfer to elevated storage via conveyor (Capacity: 112 ton/hr)	36.83
E6b: Conveyor (Con-E-Co, Lo-Pro IZ RS): Sand transfer to elevated storage via conveyor (Capacity: 86 ton/hr)	35.30
E7b: Elevated Storage Silo I (Belgrade Steel Tank 1065BB L): Cement Unloading (Capacity: 50 ton/hr)	32.37
E8b: Elevated Storage Silo II & III (Belgrade Steel Tank 1022 BB L): Cement Unloading (Capacity: 50 ton/hr)	32.37

[4] Control devices for this unit are required to be operated at all times in order to comply with the lb/hr PM emission limits.

[5] A one-time PM compliance demonstration has been performed for this equipment. For E7b, E8b, E9b, E11b, and E16 the lb/hr standard cannot be exceeded controlled. For the remaining equipment the lb/hr standard cannot be exceeded uncontrolled.

Emission Point	PM Limit (lb/hr)
E9b: Elevated Storage Silo IV & V (Belgrade Steel Tank 850 BBL): Cement & Fly Ash Unloading (Capacity: 50 ton/hr)	32.37
E10b: Conveyor (Con-E-Co, Lo-Pro IZ RS): Weigh hopper loading of sand and aggregate (Capacity: 198 ton/hr)	40.34
E10.1b Aggregate/sand transfer conveyor (Weigh hopper conveyer to truck load out)	40.34
E16 Cement/Fly Ash weigh hopper (batcher), Con-E-Co, PJC-80, (Capacity 34 ton/hr)	30.43
E11b: Conveyor (Con-E-Co, Lo-Pro IZ RS): Transit Mix Truck loading of cement and fly ash (Capacity: 34 ton/hr)	30.43
E15 Slop/Sediment handling and stockpile	2.34

S2. Monitoring and Record Keeping
[Regulation 2.17, section 5.2]

The owner or operator shall maintain the following records for a minimum of five (5) years and make the records readily available to the District upon request.

a. Opacity

i. The owner or operator shall, monthly, conduct a one-minute visible emissions survey, during normal operation, of the emission points. No more than four emission points shall be observed simultaneously. The opacity surveys can be performed on the building exhaust points if the process is inside an enclosure. The emission points to be surveyed shall include, but not be limited to, the emission points listed below:

(1) E1b Aggregate delivery to ground storage [stockpile] via Dump Truck

(2) E2b Sand delivery to ground [stockpile] via Dump Truck

(3) E3b Aggregate handling [front loader: pile to conveyor fill hopper]

(4) E3.1b Aggregate transfer to conveyor from fill hopper

(5) E4b: Loader Sand transfer to conveyor fill hopper

(6) E4.1b Sand transfer to conveyor from fill hopper

(7) E5b Conveyor: Aggregate transfer to elevated storage via conveyor

(8) E6b Conveyor: Sand transfer to elevated storage via conveyor

(9) E7b Elevated Storage Silo I: Cement Unloading

(10) E8b: Elevated Storage Silo II & III: Cement Unloading

(11) E9b: Elevated Storage Silo IV & V: Cement & Fly Ash Unloading

(12) E10b Weigh hopper, loading of sand and aggregate from storage bins (batcher)

(13) E10.1b Aggregate/sand transfer conveyor (Weigh hopper conveyer to truck load out)

(14) E11b Transit Mix Truck loading of cement and fly ash

(15) E15 Slop/Sediment handling and stockpile

(16) E16 Cement/Fly Ash weigh hopper (batcher)

(17) Dust Collector Baghouse (C1b)

(18) Dust Collector Baghouse (C2b)

(19) Dust Collector Baghouse (C3b)

(20) Dust Collector Baghouse (C4b)

(21) Dust Collector Baghouse (C5b)

ii. At emission points/release points where visible emissions are observed, the owner or operator shall initiate corrective action within eight (8) hours of the initial observation. If the visible emissions persist, the owner or operator shall perform or cause to be performed a Method 9 test, in accordance with 40 CFR Part 60, Appendix A, within 24 hours of the initial observation.

iii. The owner or operator shall, monthly, maintain records of the results of all visible emissions surveys and tests. Records of the results of any visible emissions survey shall include the date of the survey, the name of the person conducting the survey, whether or not visible emissions were observed, and what if any corrective action was performed. If an emission point is not being operated during a given month, then no visible emission survey needs to be performed and a negative declaration shall be entered in the record.

b. PM/PM_{10}

i. See Plantwide Requirements.

ii. The owner or operator shall, monthly, perform a visual inspection of the structural and mechanical integrity of the process equipment and control devices (dust collectors) for signs of damage, air leakage, corrosion, or other equipment defects, and repair and/or replace as needed. The owner or operator shall maintain monthly records of the results. The equipment to be surveyed shall include, but not be limited to, the equipment listed below:

(1) E3b Aggregate handling [front loader: pile to conveyor fill hopper]

(2) E3.1b Aggregate transfer to conveyor from fill hopper

(3) E4b: Loader Sand transfer to conveyor fill hopper

(4) E4.1b Sand transfer to conveyor from fill hopper

(5) E5b Conveyor: Aggregate transfer to elevated storage via conveyor

(6) E6b Conveyor: Sand transfer to elevated storage via conveyor

(7) E7b Elevated Storage Silo I: Cement Unloading

(8) E8b: Elevated Storage Silo II & III: Cement Unloading

(9) E9b: Elevated Storage Silo IV & V: Cement & Fly Ash Unloading

(10) E10b Weigh hopper, loading of sand and aggregate from storage bins (batcher)

(11) E10.1b Aggregate/sand transfer conveyor (Weigh hopper conveyer to truck load out)

(12) E11b Transit Mix Truck loading of cement and fly ash

(13) E16 Cement/Fly Ash weigh hopper (batcher),

(14) Dust Collector Baghouse (C1b)

(15) Dust Collector Baghouse (C2b)

(16) Dust Collector Baghouse (C3b)

(17) Dust Collector Baghouse (C4b)

(18) Dust Collector Baghouse (C5b)

iii. For Emission Points E7b, E8b, E9b, E11b, and E16: The owner or operator shall, daily, maintain records of any periods of time where the process was operating, and the control device was not operating or a declaration that the control device operated at all times that day when the process was operating.

iv. For Emission Points E7b, E8b, E9b, E11b, and E16: If there is any time that the control devices are bypassed or not in operation when the process is operating, the owner or operator shall keep a record of the following for each bypass event:

(1) Date;

(2) Start time and stop time;

(3) Identification of the control device and the uncontrolled emission point(s);

(4) PM emissions in lbs/hr during the bypass;

(5) Summary of the cause or reason for each bypass event;

(6) Corrective action taken to minimize the extent or duration of the bypass event; and

(7) Measures implemented to prevent reoccurrence of the situation that resulted in the bypass event.

S3. Reporting
[Regulation 2.17, section 5.2]

The owner or operator shall report the following information, as required by General Condition G12:

a. Opacity

i. The date, time and results of each visible emissions survey conducted that resulted in visible emissions being observed. If no visible emissions were observed during the reporting period, the owner or operator may submit a negative declaration.

ii. The date, time and results of each Method 9 test conducted. If there were no Method 9 tests performed during the reporting, the owner or operator may submit a negative declaration.

iii. Description of any corrective action taken for each exceedance of the opacity standard.

b. PM/PM_{10}

i. See Plantwide Requirements.

ii. The owner or operator shall report the following information regarding the visual equipment inspections

(1) Emission Unit ID number, and/or Emission point ID number;

(2) Identification of any repairs performed.

(3) Identification of any and all periods of failure to perform the monthly visual inspection of the structural and mechanical integrity checks.

iii. For Emission Points E7b, E8b, E9b, E11b, and E16, the owner or operator shall report the following information regarding bypasses in the annual compliance reports.

(1) Number of times the vent stream bypasses the control device and is vented to the atmosphere;

(2) Duration of each bypass to the atmosphere;

(3) Calculated pound per hour PM emissions for each bypass.

Insignificant Activities

Equipment	Qty.	PTE (ton/yr)	Regulation Basis
Mobile Internal Combustion Engine	1	2.5 NO_x	Regulation 1.02, Appendix A
E21 Brazing, soldering, or welding equipment	1	0.41 PM	Regulation 1.02, Appendix A
E17: 2,000 gallon diesel fuel above ground tank (Emission Unit IA1)	1	0.000175 VOC	Regulation 1.02, Appendix A
E18: 500 gallon diesel fuel above ground tank (Emission Unit IA1)	1	0.000045 VOC	Regulation 1.02, Appendix A
E20-C Chemical Admixtures totes EUCON WR-91 (1500 gallons) (Emission Unit IA2)	1	0.803 VOC	Regulation 1.02
E20-D Chemical Admixtures totes EUCON MR (1500 gallons)	1	0.0237 HAP[6]	Regulation 1.02
E20-E Chemical Admixtures totes EUCON A+ (1500 gallons)	1	0.0016 HAP[6]	Regulation 1.02
E20-F Chemical Admixtures totes PLASTOL 6425 (1500 gallons) (Emission Unit IA2)	2	0.5264 VOC total	Regulation 1.02
E20-G Chemical Admixtures totes ACCELGARD 90 (1500 gallons) (Emission Unit IA2)	2	1.62 VOC total 0.068 HAP[7] total	Regulation 1.02

IA Comments

1. Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements.

2. Insignificant activities identified in District Regulation 1.02, Appendix, A shall comply with generally applicable requirements.

3. The owner or operator shall annually submit an updated list of insignificant activities that occurred during the preceding year, with the compliance certification due April 15th.

4. Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.

[6] Sodium Thiocyanate
[7] Sodium Thiocyanate, Quinoline, Naphthalene, and Formaldehyde

5. The owner or operator may elect to monitor actual throughputs for each of the insignificant activities and calculate actual annual emissions or use Potential to Emit (PTE) as the annual emissions for each piece of equipment.

6. The District has determined that no monitoring, recordkeeping, or reporting requirements apply to the insignificant activities listed, except for the equipment that has an applicable regulation and permitted under an insignificant activity (IA) unit.

Equipment Non-Regulated

Emission Point	Description
E19	Concrete Machinery Corporation, Model DC 5600, natural gas, direct contact water heater, 5.6 MMBtu/hr
E20-A	One (1) Chemical Admixtures tote AIRMARC 6 (1000 gallons)[8]
E20-B	One (1) Chemical Admixtures tote RETARDER 100 (1000 gallons)[8]
E20-H	Two (2) Chemical admixture totes CALCIUM CHLORIDE (3000 gallons)[8]

[8] (M)SDS lists no regulated air pollutants.

Emission Unit IA1: Storage Tanks

IA1 Applicable Regulations

FEDERALLY ENFORCEABLE REGULATIONS		
Regulation	**Title**	**Applicable Sections**
7.12	Standard of Performance for New Storage Vessels for Volatile Organic Compounds	1 through 4

IA1 Equipment

Emission Point	Description	Install Date	Applicable Regulations	Control ID	Release ID
E17	One (1) 2,000 gallon diesel storage tank	2009	7.12	N/A	N/A
E18	One (1) 500 gallon diesel storage tank	2009		N/A	N/A
E20-C	Chemical admixture tote EUCON WR-91 (1500 gallons)	unknown		N/A	N/A
E20-E	Chemical admixture tote EUCON A+ (1500 gallons)	unknown		N/A	N/A
E20-G	Chemical admixture tote ACCELGARD 90 (1500 gallons)	unknown		N/A	N/A

IA1 Control Devices

There are no control devices associated with this equipment.

IA1 Specific Conditions

S1. Standards
[Regulation 2.17, section 5.1]

a. VOC

i. The owner or operator shall not store materials with an as stored vapor pressure of greater than or equal to 1.5 psia in the storage vessel(s), unless the storage tank is equipped with a permanent submerged fill pipe. [Regulation 7.12, section 3.3]

S2. Monitoring and Record Keeping
[Regulation 2.17, section 5.2]

The owner or operator shall maintain the following records for a minimum of five years and make the records readily available to the District upon request.

a. VOC

i. The owner or operator of the storage vessel(s) shall maintain records of the material stored and the vapor pressure in each storage vessel and if the contents of the storage vessel(s) are changed a record shall be made of the new contents, the date of the change, and the new vapor pressure in order to demonstrate compliance.

ii. The owner or operator shall keep a record that shows if the storage vessel is equipped with a submerged fill pipe. Submerged fill pipe means any fill pipe the discharge of which is entirely submerged when the liquid level is 6 inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean every fill pipe the discharge opening of which is entirely submerged when the liquid level is 2 times the fill pipe diameter above the bottom of the tank.

S3. Reporting
[Regulation 2.17, section 5.2]

The owner or operator shall report in accordance with General Condition G12.

Attachment A - Calculation Methodology and Emission Factors

The owner or operator shall calculate emissions using emission factors and equations in this attachment unless other methods are approved in writing by the District.

Emission Unit U1: Concrete Dry Mix Batch Plant

The tables supplied throughout the calculation methodology, list AP-42 emission factors, and those factors converted to lb pollutant/yd3 concrete. This is an example calculation as follows for E7 whose emission factors are based on ton cement, converting the AP-42 emission factor to PM10/yd3 concrete.

(EF lb PM10/ton cement) * (ton cement/yd^3 concrete) = (lb PM10/yd^3 concrete)
(0.47 lb PM10/ton cement) * (0.2455 ton cement/yd3 concrete) = (0.1154 lb PM10/yd^3 concrete)

Emission Factor conversion to ton composite/yd^3 concrete

Concrete composition[9]:	lbs composite/ yd^3 concrete	ton composite/ yd^3 concrete
Density	4024	2.012
Aggregate	1865	0.933
Sand	1428	0.714
Cement + Sup.	564	0.282
Water	167	0.083
Total	4024	2.012
lb cement	491	0.2455
cement Supplement (fly ash)	73	lbs/yard

[9] AP-42 11.12-2 footnote a: The average material composition of concrete batches presented was 1865 lbs course aggregate, 1428 lbs sand, 491 lbs cement and 73 lbs cement supplement. Approximately 20 gallons of water was added to this solid material to produce 4024 lbs (one cubic yard) of concrete.

Emission Factors for Cement silo filling U1 [E7b E8b, and E9b (cement only)]

	Uncontrolled			Controlled[10]		
Criteria Pollutant	**AP-42 Emission Factor (lb/ton cement)**	**AP-42 EF converted (lb/yd^3 concrete)[11]**	**EF Source**	**AP-42 Emission Factor (lb/ton cement)**	**AP-42 EF converted (lb/yd^3 concrete)[11]**	**EF Source**
PM	0.73	0.1792	AP-42, 11.12-2	0.00099	0.0002	AP-42, 11.12-2
PM10	0.47	0.1154	AP-42, 11.12-2	0.00034	8.35E-05	AP-42, 11.12-2
PM2.5[12]	0.47	0.1154	See footnote 13	0.00034	8.35E-05	See footnote 13
Arsenic	1.68E-06	4.12E-07	AP-42, 11.12-8	4.24E-09	1.04E-09	AP-42, 11.12-8
Beryllium	1.79E-08	4.39E-09	AP-42, 11.12-8	4.86E-10	1.19E-10	AP-42, 11.12-8
Cadmium	2.34E-07	5.74E-08	AP-42, 11.12-8	4.68E-09	5.74E-08	AP-42, 11.12-8
Total Chromium	2.52E-07	6.19E-08	AP-42, 11.12-8	2.90E-08	7.12E-09	AP-42, 11.12-8
Lead	7.36E-07	1.81E-07	AP-42, 11.12-8	1.09E-07	2.68E-08	AP-42, 11.12-8
Manganese	2.02E-04	4.96E-05	AP-42, 11.12-8	1.17E-07	2.87E-08	AP-42, 11.12-8
Nickel	1.76E-05	4.32E-06	AP-42, 11.12-8	4.18E-08	1.03E-08	AP-42, 11.12-8
Total Phosphorus	1.18E-05	2.90E-06	AP-42, 11.12-8	2.36E-07	2.90E-06	AP-42, 11.12-8

Emission Factors for Fly ash silo filling U1 [E9b (fly ash only)]

	Uncontrolled[13]			Controlled		
Criteria Pollutant	**AP-42 Emission Factor (lb/ton fly ash)**	**AP-42 EF converted (lb/yd^3 concrete)**	**EF Source**	**AP-42 Emission Factor (lb/ton fly ash)**	**AP-42 EF converted (lb/yd3 concrete)**	**EF Source**
PM	3.14	0.1146	AP-42, 11.12-2	0.0089	0.0003	AP-42, 11.12-2
PM10	1.1	0.0402	AP-42, 11.12-2	0.0049	1.79E-04	AP-42, 11.12-2
PM2.5[14]	1.1	0.0402	See footnote 15	0.0049	1.79E-04	See footnote 15

[10] The controlled emission factors for Cadmium and total Phosphorus were calculated using the District default baghouse efficiency of 98%; controlled EF = (uncontrolled EF) * (1-0.98)

[11] AP-42 Emission Factors are converted to (lb pollutant/yd3 concrete) for ease in calculation.

[12] In the absence of a determined $PM_{2.5}$ emission factor, the District assumes the $PM_{2.5}$ emission factor equals PM_{10}

[13] The ND uncontrolled emission factors for fly ash silo filling (E9) were calculated using the District default baghouse efficiency of 98%; uncontrolled EF = (controlled EF) / (1-0.98)

[14] In the absence of a determined $PM_{2.5}$ emission factor, the District assumes the $PM_{2.5}$ emission factor equals PM_{10}

	Uncontrolled[13]			Controlled		
Criteria Pollutant	**AP-42 Emission Factor (lb/ton fly ash)**	**AP-42 EF converted (lb/yd^3 concrete)**	**EF Source**	**AP-42 Emission Factor (lb/ton fly ash)**	**AP-42 EF converted (lb/yd3 concrete)**	**EF Source**
Arsenic	5.00E-05	1.83E-06	AP-42, 11.12-8	1.00E-06	3.65E-08	AP-42, 11.12-8
Beryllium	4.52E-06	1.65E-07	AP-42, 11.12-8	9.04E-08	3.30E-09	AP-42, 11.12-8
Cadmium	9.90E-09	3.61E-10	AP-42, 11.12-8	1.98E-10	7.23E-12	AP-42, 11.12-8
Total Chromium	6.10E-05	2.23E-06	AP-42, 11.12-8	1.22E-06	4.45E-08	AP-42, 11.12-8
Lead	2.60E-05	9.49E-07	AP-42, 11.12-8	5.20E-07	1.90E-08	AP-42, 11.12-8
Manganese	1.28E-05	4.67E-07	AP-42, 11.12-8	2.56E-07	9.34E-09	AP-42, 11.12-8
Nickel	1.14E-04	4.16E-06	AP-42, 11.12-8	2.28E-06	8.32E-08	AP-42, 11.12-8
Total Phosphorus	1.77E-04	6.46E-06	AP-42, 11.12-8	3.54E-06	1.29E-07	AP-42, 11.12-8
Selenium	3.62E-06	1.32E-07	AP-42, 11.12-8	7.24E-08	2.64E-09	AP-42, 11.12-8

E7b lb pollutant = (ton cement) * E7b EF (lb pollutant/ton cement)
E7b lb pollutant = (concrete yds^3) * E7b EF (lb pollutant/concrete yds^3)
E9b lb pollutant = (ton fly ash) * E9b EF (lb pollutant/ton fly ash)
E9b lb pollutant = (concrete yds^3) * E9b EF (lb pollutant/concrete yds^3)

Emission Factors for U1 [E1b, E2b, E3b, E3.1b, E4b, E4.1b, E5b, E6b, E10b, E10.1b, E15]

	PM Uncontrolled		PM10 Uncontrolled		
Criteria Pollutant	**AP-42 Emission Factor (lb PM/ton material)**	**AP-42 EF converted (lb PM/yd3 concrete)**	**AP-42 Emission Factor (lb PM10/ton material)1**	**AP-42 EF converted (lb PM10/yd3 concrete)**	**EF Source**
Weigh hopper (E10b, E10.1b)	0.0048	0.0079	0.00280	0.0046	AP-42, 11.12-2
Aggregate transfer (E1b[15], E3b, E3.1b, E5b, E15[15])	0.0069	0.0064	0.00330	0.0031	AP-42, 11.12-2
Sand transfer (E2b[16], E4b, E4.1b, E6b)	0.0021	0.0015	0.00099	0.0007	AP-42, 11.12-2

PM and PM_{10} per ton material defined as follows per AP-42:

[15] E1b, E15: Aggregate stockpiles/handling [delivery to ground storage pile] This emission factor is for aggregate handling and does not represent stockpile erosion.
[16] E2b: Sand stockpiles/handling [delivery to ground storage pile] This emission factor is for aggregate handling and does not represent stockpile erosion.

Weigh hopper material = (sand + aggregate) in tons
Aggregate transfer = aggregate in tons
Sand transfer = sand in tons

Example calculation for U1:
E10b lb pollutant = (ton material) * EF (lb PM/ton material)
E10b lb pollutant/yr = (concrete yds^3/yr) * EF (lb pollutant/concrete yds^3)

E1b Aggregate (SCC 3-05-011-21) Delivery to ground storage (stockpile)
E2b Sand (SCC 3-05-011-22) Delivery to ground storage (stockpile)

[E3b, E3.1b, E4b, E4.1b] Aggregate (SCC 3-05-011-23) and Sand (SCC 3-05-011-24) from ground storage to fill hopper to loading conveyor
E3b lb pollutant/yr = [(ton aggregate/yr) * EF (lb pollutant/ton aggregate)]
E4b lb pollutant/yr = [(ton sand/yr) * EF (lb pollutant/ton sand)]
E3b lb pollutant/yr = [(concrete yds^3/yr) * EF Aggregate Transfer (lb pollutant/concrete yds^3)]
E4b lb pollutant/yr = [(concrete yds^3/yr) * EF Sand Transfer (lb pollutant/concrete yds^3)]

E3.1b Aggregate (SCC 3-05-011-23) Transfer to conveyor via fill hopper
E4.1b Sand (SCC 3-05-011-24) Transfer to conveyor via fill hopper
E3.1b lb pollutant/yr = [(ton sand/yr) * EF (lb pollutant/ton sand) + (ton aggregate/yr) * EF (lb pollutant/ton aggregate)]
E3.1b lb pollutant/yr = (concrete yds^3/yr) * EF Sand Transfer (lb pollutant/concrete yds^3) + (concrete yds^3/yr) * EF Aggregate Transfer (lb pollutant/concrete yds^3)

E5b Aggregate (SCC 3-05-011-04) Transfer to elevated storage
E6b Sand (SCC 3-05-011-05) Transfer to elevated storage
E5b lb pollutant/yr = [(ton aggregate/yr) * EF Aggregate Transfer (lb pollutant/ton aggregate)]
E5b lb pollutant/yr = [(concrete yds^3/yr) * EF Aggregate Transfer (lb pollutant/concrete yds^3)
E6b lb pollutant/yr = [(ton sand/yr) * EF Sand Transfer (lb pollutant/ton sand)]
E6b lb pollutant/yr = [(concrete yds^3/yr) * EF Sand Transfer (lb pollutant/concrete yds^3)]

E10b A/S transfer to weigh hopper
E10b lb pollutant/yr = [(ton sand/yr) * EF (lb pollutant/ton sand) + (ton aggregate/yr) * EF (lb pollutant/ton aggregate)]
E10b lb pollutant/yr = (concrete yds^3/yr) * EF Sand Transfer (lb pollutant/concrete yds^3) + (concrete yds^3/yr) * EF Aggregate Transfer (lb pollutant/concrete yds^3)

E10.1b Aggregate/sand transfer conveyor (Weigh hopper conveyer to truck load out)
E10.1b lb pollutant/yr = [(ton sand/yr) * EF (lb pollutant/ton sand) + (ton aggregate/yr) * EF (lb pollutant/ton aggregate)]
E10.1b lb pollutant/yr = (concrete yds^3/yr) * EF Sand Transfer (lb pollutant/concrete yds^3) + (concrete yds^3/yr) * EF Aggregate Transfer (lb pollutant/concrete yds^3)

U1 [E16]: Cement/Fly ash weigh hopper [batcher][17]

	Uncontrolled		Controlled		
Criteria Pollutant	**AP-42 Emission Factor (lb pollutant/ton cement + supplement)**	**AP-42 EF converted (lb pollutant/yd^3 concrete)**	**AP-42 Emission Factor (lb pollutant/ton cement + supplement)**	**AP-42 EF converted (lb pollutant/yd^3 concrete)**	**EF Source**
PM	1.118	0.3153	0.098	0.0276	AP-42, 11.12-2
PM10	0.31	0.0874	0.0263	0.0074	AP-42, 11.12-2
PM2.5[18]	0.31	0.0874	0.0263	0.0074	See footnote 19
Arsenic	1.22E-05	3.44E-06	6.02E-07	1.70E-07	AP-42, 11.12-8
Beryllium	2.44E-07	6.88E-08	1.04E-07	2.93E-08	AP-42, 11.12-8
Cadmium	3.42E-08	9.64E-09	9.06E-09	2.55E-09	AP-42, 11.12-8
Total Chromium	1.14E-05	3.21E-06	4.10E-06	1.16E-06	AP-42, 11.12-8
Lead	3.62E-06	1.02E-06	1.53E-06	4.31E-07	AP-42, 11.12-8
Manganese	6.12E-05	1.73E-05	2.08E-05	5.87E-06	AP-42, 11.12-8
Nickel	1.19E-05	3.36E-06	4.78E-06	1.35E-06	AP-42, 11.12-8
Total Phosphorus	3.84E-05	1.08E-05	1.23E-05	3.47E-06	AP-42, 11.12-8
Selenium	2.62E-06	7.39E-07	1.13E-07	3.19E-08	AP-42, 11.12-8

E16 lb pollutant/yr = (ton cement + supplement)/yr * EF (lb pollutant/ton cement + supplement)
E16 lb pollutant/yr = (concrete yds^3/yr) * EF (lb pollutant/concrete yds^3)

U1 [E11b]: Truck loading (truck mix) (SCC 3-05-011-10)

	Uncontrolled		Controlled		
Criteria Pollutant	**AP-42 Emission Factor (lb pollutant/ton cement + supplement)**	**AP-42 EF converted (lb pollutant/yd^3 concrete)**	**AP-42 Emission Factor (lb pollutant/ton cement + supplement)**	**AP-42 EF converted (lb pollutant/yd^3 concrete)**	**EF Source**
PM	1.118	0.3153	0.098	0.0276	AP-42, 11.12-2
PM10	0.31	0.0874	0.0263	0.0074	AP-42, 11.12-2
PM2.5 [19]	0.31	0.0874	0.0263	0.0074	See footnote 20
Arsenic	1.22E-05	3.44E-06	6.02E-07	1.70E-07	AP-42, 11.12-8

[17] Without specified emission factors for cement/fly ash weigh hopper [batcher], the truck loadout (truck mix) emission factors are applied.
[18] In the absence of a determined $PM_{2.5}$ emission factor, the District assumes the $PM_{2.5}$ emission factor equals PM_{10}
[19] In the absence of a determined $PM_{2.5}$ emission factor, the District assumes the $PM_{2.5}$ emission factor equals PM_{10}

	Uncontrolled		Controlled		
Criteria Pollutant	**AP-42 Emission Factor (lb pollutant/ton cement + supplement)**	**AP-42 EF converted (lb pollutant/yd^3 concrete)**	**AP-42 Emission Factor (lb pollutant/ton cement + supplement)**	**AP-42 EF converted (lb pollutant/yd^3 concrete)**	**EF Source**
Beryllium	2.44E-07	6.88E-08	1.04E-07	2.93E-08	AP-42, 11.12-8
Cadmium	3.42E-08	9.64E-09	9.06E-09	2.55E-09	AP-42, 11.12-8
Total Chromium	1.14E-05	3.21E-06	4.10E-06	1.16E-06	AP-42, 11.12-8
Lead	3.62E-06	1.02E-06	1.53E-06	4.31E-07	AP-42, 11.12-8
Manganese	6.12E-05	1.73E-05	2.08E-05	5.87E-06	AP-42, 11.12-8
Nickel	1.19E-05	3.36E-06	4.78E-06	1.35E-06	AP-42, 11.12-8
Total Phosphorus	3.84E-05	1.08E-05	1.23E-05	3.47E-06	AP-42, 11.12-8
Selenium	2.62E-06	7.39E-07	1.13E-07	3.19E-08	AP-42, 11.12-8

E11b lb pollutant/yr = (ton cement + supplement)/yr * EF (lb pollutant/ton cement + supplement)
E11b lb pollutant/yr = (concrete yds^3/yr) * EF (lb pollutant/concrete yds^3)

IA1 [E17, E18, E20] Emission Factors for Storage Tanks

Emission Source	Pollutant	Emission Factor (lb/gallon)	Emission Factor Source
E17 Diesel Storage tank 2000 gallons	VOC	N/A	Emissions accounted for in the working losses for the storage tanks below using AP-42 evaporative losses.
E18 Diesel Storage tank 500 gallons	VOC	N/A	
E20-C Chemical Admixtures totes EUCON WR-91	VOC	N/A	
E20-F Chemical Admixtures totes PLASTOL 6425	VOC	N/A	Emissions accounted for in the working losses for the storage tanks below using AP-42 evaporative losses.
E20-G Chemical Admixtures totes ACCELGARD 90	VOC	N/A	

Non-Regulated

[E19] NG Direct Water Heater Emission Factors

Emission Source	Pollutant	Natural Gas Emission Factor (lb/10^6 scf natural gas combusted)		Emission Factor Source
		Uncontrolled	Controlled	
E19	NOX	100	100	AP-42, 1.4-1
	CO	84	84	AP-42, 1.4-1
	PM	0.52	0.52	2011 NEI (Roy Huntley, EPA) [20]
	PM10	.0.32	0.32	Roy Huntley, EPA[20]
	SO2	0.6	0.6	AP-42, 1.4-2
	VOC	5.5	5.5	AP-42, 1.4-2
	NH3	3.2	3.2	EPA Web FIRE

E = (X) * (EF lb/10^6 scf) * (1 ton/2000 lb.)
Where: E = emissions (tons)
X = the amount of natural gas combusted (10^6 scf)
[AP-42 EF (lb/MMBtu) converted to (lb/10^6 scf) natural gas combusted]

[E19]: NG Direct Water Heater Emission Factors

Emission Source	Individual HAP/TAC	CAS	Natural Gas Emission Factor (lb/10^6 scf natural gas combusted)		Emission Factor Source
			Uncontrolled	Controlled	
E19	2-Methylnaphthalene	91-57-6	2.40E-05	2.40E-05	AP-42, 1.4-3
	3-Methylchloranthrene	56-49-5	1.80E-06	1.80E-06	AP-42, 1.4-3
	DMBA	57-97-6	1.60E-05	1.60E-05	AP-42, 1.4-3
	Acenaphthene	83-32-9	1.80E-06	1.80E-06	AP-42, 1.4-3
	Acenaphthylene	208-96-8	1.80E-06	1.80E-06	AP-42, 1.4-3
	Anthracene	120-12-7	2.40E-06	2.40E-06	AP-42, 1.4-3
	Benz(a)anthracene	56-55-3	1.80E-06	1.80E-06	AP-42, 1.4-3
	Benzene	71-43-2	2.10E-03	2.10E-03	AP-42, 1.4-3
	Benzo(a)pyrene	50-32-8	1.20E-06	1.20E-06	AP-42, 1.4-3
	Benzo(b)fluoranthene	205-99-2	1.80E-06	1.80E-06	AP-42, 1.4-3
	Benzo(g,h,i)perylene	191-24-2	1.20E-06	1.20E-06	AP-42, 1.4-3

[20] The revised PM emission factors are from: "EPA's Emission Inventory and Analysis Group guidance 3/30/2012".

Emission Source	Individual HAP/TAC	CAS	Natural Gas Emission Factor (lb/10^6 scf natural gas combusted)		Emission Factor Source
			Uncontrolled	Controlled	
	Benzo(k)fluoranthene	205-82-3	1.80E-06	1.80E-06	AP-42, 1.4-3
	Chrysene	218-01-9	1.80E-06	1.80E-06	AP-42, 1.4-3
	Dibenzo(a,h)anthracene	53-70-3	1.20E-06	1.20E-06	AP-42, 1.4-3
	Dichlorobenzene	25321-22-6	1.20E-03	1.20E-03	AP-42, 1.4-3
	Fluoranthene	206-44-0	3.00E-06	3.00E-06	AP-42, 1.4-3
	Fluorene	86-73-7	2.80E-06	2.80E-06	AP-42, 1.4-3
	Formaldehyde	50-00-0	7.50E-02	7.50E-02	AP-42, 1.4-3
	Hexane	110-54-3	1.80E+00	1.80E+00	AP-42, 1.4-3
	Indeno(1,2,3-cd) pyrene	193-39-5	1.80E-06	1.80E-06	AP-42, 1.4-3
	Naphthalene	91-20-3	6.10E-04	6.10E-04	AP-42, 1.4-3
	Phenanathrene	85-01-8	1.70E-05	1.70E-05	AP-42, 1.4-3
	Pyrene	129-00-0	5.00E-06	5.00E-06	AP-42, 1.4-3
	Toluene	108-88-3	3.40E-03	3.40E-03	AP-42, 1.4-3
	Arsenic	7440-38-2	2.00E-04	2.00E-04	AP-42, 1.4-4
	Beryllium	7440-41-7	1.20E-05	1.20E-05	AP-42, 1.4-4
	Cadmium	7440-43-9	1.10E-03	1.10E-03	AP-42, 1.4-4
	Chromium	7440-47-3	1.40E-03	1.40E-03	AP-42, 1.4-4
	Cobalt	7440-48-4	8.40E-05	8.40E-05	AP-42, 1.4-4
	Manganese	7439-96-5	3.80E-04	3.80E-04	AP-42, 1.4-4
	Mercury	7439-97-6	2.60E-04	2.60E-04	AP-42, 1.4-4
	Nickel	7440-02-0	2.10E-03	2.10E-03	AP-42, 1.4-4
	Selenium	7782-49-2	2.40E-05	2.40E-05	AP-42, 1.4-4

$E_{(HAP)}$ = (X) (EF lb/10^6 scf) (1 ton/2000 lb.)
Where: $E_{(HAP)}$ = emissions (tons)
X = the amount of natural gas combusted (10^6 scf)
[AP-42 EF (lb/MMBtu) converted to (lb/10^6 scf) natural gas combusted]

Attachment B – Protocol Checklist for a Performance Test

A complete protocol must include the following information

1. Facility name, location, and Plant ID number.
2. Responsible Official and environmental contact names.
3. Permit numbers that are requiring the test to be conducted.
4. Test methods to be used (*i.e.* EPA Method 1, 2, 3, 4, and 5).
5. Alternative test methods or description of modifications to the test methods to be used.
6. Purpose of the test including equipment and pollutant to be tested. (The purpose may be described in the permit that requires the test to be conducted or it may be to show compliance with a federal regulation or emission standard.)
7. Tentative test dates. (These may change but the District will need final notice at least 10 days in advance of the actual test dates in order to arrange for observation.)
8. Maximum rated production capacity of the system.
9. Production-rate goal planned during the performance test for demonstration of compliance (if appropriate, based on limits) and justification of the planned production rate, if less than the maximum rate.
10. Method to be used for determining rate of production during the performance test;
11. Method to be used for determining rate of production during subsequent operations of the process equipment to demonstrate compliance.
12. Description of normal operation cycles, if applicable.
13. Discussion of operating conditions that tend to cause worse case emissions. This is especially important to clarify if worst case emissions do not result from the maximum production rate.
14. Process flow diagram.
15. The type and manufacturer of the control equipment, if any.
16. The control equipment parameter to be monitored and recorded during the performance test. These parameters may include pressure drops, flow rates, pH, temperature, *etc.* The values achieved during the test may be required during subsequent operations to describe the operating parameters that are indicative of good operating performance.
17. How quality assurance and accuracy of the data will be maintained, including sample identification and chain-of-custody procedures, audit sample provider, and number of audit samples to be used, if applicable.
18. Diameter of the pipe, duct, stack, or flue to be tested.
19. Distances from the testing sample ports to the nearest upstream and downstream flow disturbances such as bends, valves, constrictions, expansions, and exit points for outlet and additionally for inlet.
20. The number of traverse points to be tested for the outlet and the inlet if required, using Appendix A-1 to 40 CFR Part 60.

The Stack Test Review fee must be submitted with each stack test protocol.

The current fee is listed on the APCD website (louisvilleky.gov/APCD)